ORIGINAL RESEARCH ARTICLE

Attitudes of mothers to male circumcision in North-East Democratic Republic of Congo: A cross-sectional study

DOI: 10.29063/ajrh2026/v30i3.12

Vanessa Dochynets[1], Angela E. Schellenberg[2] and Philip Wood[3]*

Department of Kinesiology, University of Winnipeg, 515 Portage Avenue, Winnipeg, Manitoba, Canada[1] ; Department of General Surgery, Selkirk Regional Health Centre, 120 Easton Drive, Selkirk, Manitoba, Canada[2] ; Centre Médical Évangélique, Bunia, Democratic Republic of Congo[3]

***For Correspondence**: Email: *v.dochynets.med@gmail.com*; Phone: 204-891-2640

Abstract

Male circumcision is an accepted HIV prevention measure in high-incidence countries and is now part of global HIV prevention programs. We interviewed 63 mothers at four major hospitals in Bunia, North-Eastern Democratic Republic of Congo (DRC) between February and March 2014, about their circumcision practices for their sons, including reasons and timing. All participants indicated that their son's father was circumcised and that they have or will circumcise their son. The most common reason given was adherence to social norms. Only 12.7% mentioned prevention of sexually transmitted infections, including HIV. The mean age of circumcision was 2.5 ± 1.8 years, with reasons including greater strength to tolerate surgery (34.9%) and better pain tolerance (27.0%). All responses were recorded, entered into Microsoft Excel, and analyzed to calculate the mean, average, and standard deviation statistics. Few mothers planned circumcision in the newborn period. These findings suggest that circumcision in the DRC is culturally driven rather than motivated by HIV prevention and typically occurs after the newborn period. Parental education on optimal timing is needed to reduce surgical risks and maximize health benefits. *(Afr J Reprod Health 2026; 30 [4]: 131-137).*

Keywords: Circumcision, Cultural Practices, Newborn Health, Surgical Timing, HIV

Résumé

La circoncision masculine est une mesure de prévention du VIH reconnue dans les pays à forte incidence et fait désormais partie des programmes mondiaux de prévention. Nous avons interrogé 63 mères dans quatre grands hôpitaux de Bunia, au nord-est de la République démocratique du Congo (RDC), entre février et mars 2014, sur leurs pratiques de circoncision pour leurs fils, notamment les raisons et le moment de l'intervention. Toutes les participantes ont indiqué que le père de leur fils était circoncis et qu'elles avaient circoncis ou allaient circoncire leur fils. La raison la plus fréquemment invoquée était le respect des normes sociales. Seules 12,7 % ont mentionné la prévention des infections sexuellement transmissibles, y compris le VIH. L'âge moyen de la circoncision était de 2,5 ± 1,8 ans, les raisons invoquées étant une meilleure capacité à supporter l'intervention (34,9 %) et une meilleure tolérance à la douleur (27,0 %). Toutes les réponses ont été enregistrées, saisies dans Microsoft Excel et analysées afin de calculer la moyenne et l'écart type. Peu de mères prévoyaient une circoncision chez leur nouveau-né. Ces résultats suggèrent qu'en RDC, la circoncision est davantage motivée par des facteurs culturels que par la prévention du VIH et qu'elle a généralement lieu après la période néonatale. Il est nécessaire d'informer les parents sur le moment optimal pour l'intervention afin de réduire les risques chirurgicaux et d'optimiser les bénéfices pour la santé. *(Afr J Reprod Health 2026; 30 [4]: 131-137).*

Mots-clés: Circoncision, Pratiques culturelles, Santé du nouveau-né, Moment optimal pour l'intervention, VIH

Introduction

Medical male circumcision has become an accepted prevention measure in the spread of HIV in countries with a high incidence of HIV. The most recent UNAIDS global AIDS update[1] makes the recommendation for voluntary medical male circumcision as an effective HIV prevention tool. A policy statement by the American Academy of Pediatrics (AAP) also supports infant circumcision. [2] Many studies have demonstrated an association between medical male circumcision and decreased risk of HIV infection.[3] Three randomized clinical trials performed in sub-Saharan Africa have demonstrated that circumcised males have a 76% (South Africa),[4] 60% (Kenya),[5] and 55% (Uganda)[6] reduction in the risk of HIV infection compared to uncircumcised males.

Global male circumcision rates are approximately 38.7%, half of which are performed for religious and cultural reasons.[7] In the Democratic Republic of Congo (DRC) an estimated 97.2% of males are circumcised.[7] Many countries perform circumcision in early adolescence as part of initiation rites. The AAP most recent statement states that male circumcision has the lowest surgical risk and greatest health benefit if performed in the newborn period, though ethical considerations for parents are also raised in terms of delaying the procedure to an age where informed consent can be provided. Newborn circumcision is a bloodless procedure and less traumatic than performed later in life as an adolescent.[13] Although the study was conducted in 2014, it continues to provide valuable insight into maternal decision making around circumcision in the DRC, at a time when Voluntary Male Medical Circumcision (VMMC) programs were still expanding in the region. By April 2024 an estimated 35 million men had been circumcised through VMMC programs,[17] highlighting the ongoing commitment to HIV prevention through surgical intervention. Our study provides a basis of comparison that can aid in the understanding of how cultural norms, parental knowledge, and maternal attitudes towards the timing of circumcision have evolved over time, and how these factors have influenced the uptake and success of current VMMC initiatives.

The objective of this study was to gain an understanding of the knowledge and views during the decision-making process regarding male circumcision among mothers in North-East DRC.

Methods

Data collection

We interviewed 63 mothers at four major hospitals in Bunia, located in North-Eastern DRC between February and March 2014. The women interviewed were either inpatients of a postpartum ward having recently given birth to a son, or visiting a pediatric ward where they had an infant son admitted. All interviews were conducted at the bedside based on the questions listed below. The second author (AES) recorded the responses from each participant with the aid of a local physician, who provided translation as many of the mothers spoke Swahili or other local dialects during the interviews. Interviews were conducted at the Evangelical Medical Center, Bunia City Hospital, Bunia General Referral Hospital, and Pediatric Care Center. The study protocol was approved by the hospital director of each hospital prior to conducting the survey. Participants provided verbal informed consent prior to participation.

We collected basic demographics from the mothers interviewed that included age and level of education. We also asked the following questions regarding circumcision: whether the son's father was circumcised; if they would or had their son circumcised and their reason; at what age they would or had their son circumcised and why they chose that age; and who would or had performed the circumcision. For women in the postpartum ward, we also asked if they were willing to have their newborn circumcised.

Data analysis

Once all responses were collected, the data was then entered into Microsoft Excel, which was used to compile the results as well as generate the tables and figures. Excel was also used to calculate the mean, average, and standard deviation statistics.

Ethical considerations

The study protocol was approved by the Research Ethics Committee of the Institut Supérieur des Techniques Médicales de Nyankunde (Higher Institute of Medical Techniques of Nyankunde), conducted in Bunia on January 31, 2023. Ethical clearance No. 003/2023 was granted by Professor Tasile Mawa Paul Roméo. The study protocol was approved by the director of each hospital prior to conducting the survey, and participants provided verbal informed consent prior to participation.

Results

Demographics

The mean age of mothers interviewed was 26.8 years old. Over half of the mothers were between the ages of 15-25 years old.

Table 1: Baseline demographics of mothers interviewed

Characteristic	Mean ± SD or no. (%)
Age (year)	26.8 ± 7.9
Age Range	
15-25 years old	34 (54.0%)
26-35 years old	22 (34.9%)
36-45 years old	4 (6.3%)
>45 years old	3 (4.8%)
Education	
None	4 (6.3%)
Some Primary	15 (23.8%)
Some Secondary	39 (61.9%)
Some Tertiary	5 (7.9%)
Interview location (English)	
Evangelical Medical Center, Bunia	28 (44.4%)
Bunia City Hospital	19 (30.2%)
Bunia General Referral Hospital	11 (17.5%)
Pediatric Care Center, Bunia	5 (7.9%)
Ward type	
Postpartum	36 (57.1%)
Pediatrics	27 (42.9%)

Note: Original hospital names in French — Centre Médical Évangélique, Centre Hospitalier Bunia Cité, Hôpital Général de Référence de Bunia, Centre des Soins Pédiatriques

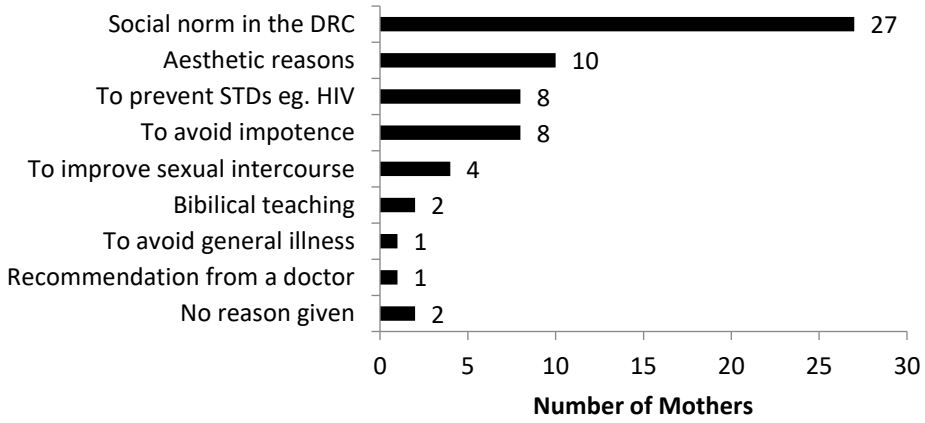

Figure 2: Mothers' reasons for circumcision of their son

The majority of women interviewed had some primary or secondary education (Table 1).

Attitudes to circumcision

All 63 mothers interviewed responded that the father of their son was circumcised. All women also stated that they have or will have their son circumcised. The most common reason given (42.9%) regarding their decision to have their son circumcised was that they were following the social norm in the DRC, whereas 15.9% stated aesthetic reasons. Only 12.7% of all women stated the prevention of sexually transmitted diseases such as HIV as a reason for circumcision (Figure 2).

Timing of circumcision

The mean age at which mothers stated they were planning or had their son circumcised was 2.5 ± 1.8 years.

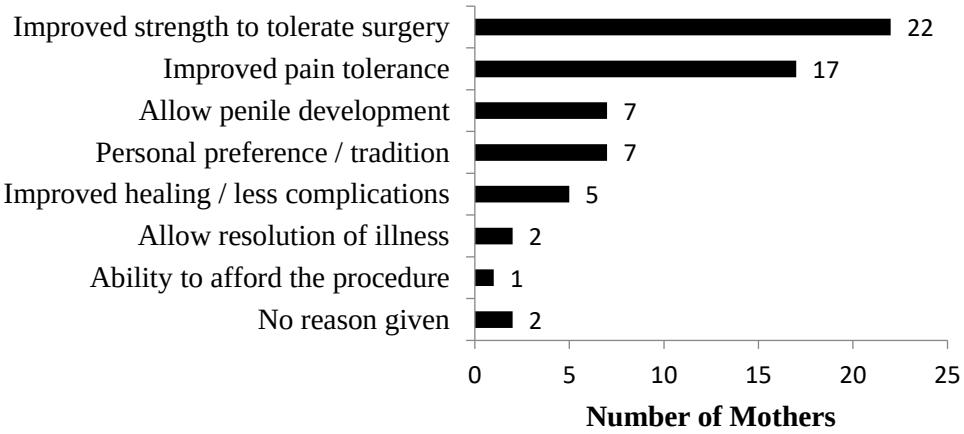

Figure 3: Mothers reasons for age of circumcision

Reasons stated for choosing this age for circumcision included improved strength to tolerate the surgery (34.9%) and improved pain tolerance (27.0%) as listed in Figure 3. Of the 36 mothers who were admitted to the postpartum ward, only 9 indicated they were planning to have their newborn son circumcised within the newborn period. However, no women interviewed on the pediatric ward had their son circumcised in the newborn period.

Health care provider to perform circumcision

When mothers were asked who will or had performed their son's circumcision, 77.8% stated their preference was a doctor whereas the remaining 22.2% stated a nurse.

Discussion

The cohort of mothers in our study revealed a 100% circumcision rate among infant sons as well as a 100% circumcision rate among fathers. This is consistent with previously reported circumcision rates of approximately 97.2% from the DRC.[7] The most common reason given for performing circumcision for their son was that they were following the social norm of practice in the DRC (42.9%), followed by aesthetic reasons (15.9%). Only 12.7% of all women stated the prevention of sexually transmitted diseases such as HIV as a reason for circumcision. This indicates the high rates of circumcision in the DRC are a cultural norm, rather than motivated by a protection of HIV acquisition.Numerous studies have found male circumcision reduces the risk of HIV transmission among heterosexual males in areas with high HIV prevalence, including three randomized clinical trials from sub-Saharan Africa.[4-6,8] The ANRS 1265 randomized controlled trial demonstrated a protection to HIV infection of 76% in circumcised males between the age of 18 and 24 in South Africa.[4] A randomized controlled trial in Kenya found a 60% protective effect of circumcision to acquiring HIV.[5] The third randomized trial was conducted in rural Uganda and found that circumcision prevents the incidence of HIV by 55% and reduced the rate of genital ulcer disease by 48%.[6] A Cochrane meta-analysis of the three randomized clinical trials that found an overall 50% relative risk reduction of acquiring HIV at 12 months and 54% at 21 or 24 months following circumcision.[8] The AAP 2012 report concluded that the health benefits of newborn male circumcision outweigh the risks. The health benefits included not only decreased transmission of HIV and other sexually transmitted infections, but also the prevention of urinary tract infections and penile cancer.[2] A study by Daling et al found a 1.5-fold increase in the risk of invasive penile cancer in males not circumcised in childhood. A history of

phimosis in uncircumcised males was found to be strongly associated with development of penile cancer, suggesting that childhood circumcision reduces penile cancer risk by eliminating the possibility of phimosis.[9] A meta-analysis evaluating the association between male circumcision and penile cancer also revealed a strong protective effect of childhood or adolescent circumcision on invasive penile cancer.[10] Our study of women in North-East DRC found a lack of knowledge in regard to the important risk reduction of HIV transmission in circumcised males. A survey of women in Swaziland revealed that women have good knowledge in the major benefit of reduced risk of acquiring HIV, likely due to the promotion of HIV prevention programs in the region.[11] This study also revealed that some women prefer to wait until adolescence to circumcise a son, often as a part of initiation rites.[11] In our cohort, the average timing of circumcision was during infancy and not during the newborn period. Reasons to wait beyond the newborn period included improved strength to tolerate the surgery (34.9%) and improved pain tolerance (27.0%). Even though 9 mothers in our study, who had newly given birth to a son, stated they were planning to circumcise their son in the newborn period, it is difficult to predict the actual timing of circumcision. All mothers with infant sons waited beyond the newborn period when circumcision is easiest to perform. The AAP states circumcision has the lowest surgical risk and greatest health benefit if performed in the newborn period.[2]

In Zambia and Zimbabwe, early infancy and early adolescence were both found to be equally ideal ages for circumcision.[12] Common reasons for choosing 0-2 months as the ideal age to circumcise included the ability of the circumcision wound to heal faster (42% in Zimbabwe, 28% in Zambia), and the likelihood not to suffer as much pain (27% in Zimbabwe, 23% in Zambia). In another study, interviews in regard to early infant male circumcision were held across Zimbabwe and participants felt circumcision should be done 3 to 6 months after birth.[13] They generally felt that infant circumcision in the early newborn period would result in increased surgical error.[13]Circumcision can be safely performed one week following birth as blood coagulation begins to reach adult levels. During the first few days of life there is a general hyporeactivity of platelets in the newborn, though normal adult reactivity levels are reached by the fifth to ninth day of life.[14] Prothrombin time reaches adult levels by day 5 of life.[15] Despite vitamin-K-dependent coagulation factors being decreased by 50% of adult values, hemostasis is balanced by physiologic deficiencies of the inhibitors of coagulation.[16]

Strengths and limitations

Limitations of our study include only mothers being interviewed, as fathers were more often not present. Fathers' perspectives were not gathered and can be influential in the decision-making process. A study in Zimbabwe revealed the importance of the father as decision maker.[13] Our study was also undertaken largely in a postnatal ward setting while we know a significant number of circumcisions are performed at puberty.

Women who do not deliver in hospital may not think of circumcision until the more traditional age of initiation. Additionally, circumcision status was self-reported by mothers, which may have led to over reporting given the strong cultural norm favouring circumcision. Another limitation is that the data was collected in 2014. Despite being collected some years ago, the data remains relevant today as it demonstrates how maternal attitudes and cultural practices around circumcision have historically shaped decision making. They also provide a baseline for understanding current trends and the ongoing impact of expanding VMMC programs in the region.

Despite these limitations, our study continues to provide valuable insight into the maternal attitudes and decision making around male circumcision in the North-East DRC, as it offers data that can inform educational programs and policies aimed at improving the timing and safety of circumcision practices. The clinical implications of our study include the need to educate parents by discussing the benefits and risks of newborn circumcision, explaining that the benefits outweigh the risks in a healthy newborn male. Parents need to be informed that circumcision

performed after the newborn period has greater risk and cost, along with longer healing time than if performed as a newborn.[2]

Conclusion

Throughout our study, our findings have led us to conclude that circumcision in the North-East DRC is largely driven by cultural norms rather than parental knowledge of HIV prevention, with most procedures being done after the newborn period. Despite the limitations, our findings remain relevant today as they highlight the ongoing cultural practices and provide a historical baseline for future research. The results emphasize the importance of educational programs for parents on the optimal timing and health benefits of infant circumcision, which can inform public health policies and clinical practices aimed at improving both the safety and uptake of circumcision in the region, including the continued implementation and expansion of VMMC programs.

Acknowledgments

The authors wish to thank the hospital staff and local translators at Evangelical Medical Center (Centre Médical Évangélique) and other participating facilities in Bunia, DRC, for their assistance in conducting interviews. The authors received no external funding for this study.

Contribution of Authors

A.E. Schellenberg and P. Wood conceived and designed the study. A.E. Schellenberg collected the data. A.E. Schellenberg and V. Dochynets analyzed the data. All three authors contributed to preparing the manuscript. V. Dochynets edited and revised the final manuscript. All authors approved the final version.

References

1. Joint United Nations Programme on HIV/AIDS (UNAIDS). *Global AIDS Update 2016.* Geneva: UNAIDS; 2016.
2. American Academy of Pediatrics Task Force on Circumcision. Male circumcision. *Pediatrics* 2012;130(3): e756-e785.
3. Bailey RC, Plummer FA and Moses S. Male circumcision and HIV prevention: current knowledge and future research directions. *Lancet Infectious Diseases* 2001; 1:223-231.
4. Auvert B, Talijaard D, Lagarde E, Sobngwi-Tambekou J, Sitta R and Puren A. Randomized, controlled intervention trial of male circumcision for reduction of HIV infection risk: The ANRS 1265 Trial. *PLOS Medicine* 2005;2(11):e298.
5. Bailey RC, Moses S, Parker CB, Agot K, Maclean I, Krieger JN, Williams CFM, Campbell RT and Ndinya-Achola JO. Male circumcision for HIV prevention in young men in Kisumu, Kenya: a randomized controlled trial. *Lancet* 2007; 369:643-656.
6. Gray RH, Kigozi G, Serwadda D, Makumbi F, Watya S, Nalugoda F, Kiwanuka N, Moulton LH, Chaudhary MA, Chen MZ, Sewankambo NK, Wabwire-Mangen F, Bacon MC, Williams CF, Opendi P, Reynolds SJ, Laeyendecker O, Quinn TC and Wawer MJ. Male circumcision for HIV prevention in men in Rakai, Uganda: a randomized trial. *Lancet* 2007; 369:657-666.
7. Morris BJ, Wamai RG, Henebeng EB, Tobian AAR, Klausner JD, Banerjee J and Hankins CA. Estimation of country-specific and global prevalence of male circumcision. *Population Health Metrics* 2016;14(4):1-13.
8. Siegfried N, Muller M, Deeks JJ and Volmink J. Male circumcision for prevention of heterosexual acquisition of HIV in men. *Cochrane Database of Systematic Reviews* 2009; 2:1-32.
9. Daling JR, Madeleine MM, Johnson LG, Schwartz SM, Shera KA, Wurscher MA, Carter JJ, Porter PL, Galloway DA, McDougall JK and Krieger JN. Penile cancer: importance of circumcision, human papillomavirus and smoking in in situ and invasive disease. *Int J Cancer* 2005; 116:606-616.
10. Larke NL, Thomas SL, dos Santos Silva I and Weiss HA. Male circumcision and penile cancer: a systematic review and meta-analysis. *Cancer Causes Contol* 2001; 22:1097-1110.
11. Jarrett P, Kliner M and Walley J. Early infant male circumcision for human immunodeficiency virus prevention: knowledge and attitudes of women attending a rural hospital in Swaziland, Southern Africa. *Journal of Social Aspects of HIV/AIDS* 2014;11(1):61-66.
12. Sgaier SK, Sharma S, Eletskaya M, Prasad R, Mugurungi O, Tambatamba B, Ncube G, Xaba S, Nanga A, Gumede-Moyo S and Kretschmer S. Attitudes and decision-making about early-infant versus early-adolescent male circumcision: Demand-side insights for sustainable HIV prevention strategies in Zambia and Zimbabwe. *PLoS ONE* 2017;12(7): e0181411.
13. Mavhu W, Hatzold K, Laver SM, Sherman J, Tengende BR, Mangenah C, Langhaug LF, Hart G and Cowan FM. Acceptability of early infant male circumcision as an HIV prevention intervention in Zimbabwe: A qualitative perspective. *PLoS ONE* 2012;7(2): e32475.
14. Del Vecchio A, Motta M and Romangnoli C. Neonatal Platelet Function. *Clin Perinatol* 2015;42(3):625-638.

15. Andrew M, Paes B, Milner R, Johnston M, Mitchell L, Tollefsen DM, Keller MA and Powers P. Development of the Human Coagulation System in the Full-Term Infant. *Blood* 1987;70(1):165-172.
16. Reverdiau-Moalic P, Delahousse N and Bardos P, Peycelon M, Grassi J, Viallard JF, Zini J and Meuret P. Evolution of blood coagulation activators and inhibitors in the healthy human fetus. *Blood* 1996; 88:900-906.
17. AVAC. A Call to Action for Voluntary Medical Male Circumcision. *AVAC* 2024